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January 10, 1994

By Hand

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

Re: Ex Parte Presentation
CC Docket No. 92-297
Local Multipoint Distribution Service

Dear Mr. Caton:

On behalf of Suite 12 Group ("Suite 12"), petitioner in the above-referenced rulemaking proceeding, enclosed please find two (2) copies of a report, entitled "Satellite Usage at 28 GHz," prepared by Dr. Jeffrey Krauss, and a statement prepared by Walter L. Morgan. These documents confirm that there is substantial capacity currently available on satellite transponders in the C-band and the Ku-band, and that current and proposed use of the 28 GHz band by satellite interests is minimal.

Please place these two copies of these documents in the above-referenced docket. Any questions regarding this study should be directed to the undersigned.

Sincerely,



Michael R. Gardner
Charles R. Milkis
William J. Gildea III
Counsel for Suite 12 Group

Enclosures

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January 10, 1994

By Hand

Dear Chairman Hundt
Commissioner Quello
Commissioner Barrett
Commissioner Duggan

Re: "Satellite Usage at 28 GHz"
CC Docket No. 92-297
Local Multipoint Distribution Service

Suite 12 Group ("Suite 12") today submitted in the above-referenced proceeding the enclosed report, entitled "Satellite Usage at 28 GHz" ("Satellite Usage Report"), which demonstrates that existing C-band and Ku-band allocations are fully sufficient to satisfy spectrum demands for fixed satellite services for the foreseeable future. This independently conducted study further confirms that the minimal existent demand for satellite operations in the 28 GHz (or Ka) band can be readily accommodated in the 29.5-30.0 GHz portion of the spectrum that is outside of the 27.5-29.5 GHz spectrum which the Commission has proposed to reallocate for LMDS.

The Satellite Usage Report, which was prepared by Dr. Jeffrey Krauss, a leading recognized expert in radio spectrum management and telecommunications technology policy, directly refutes the claim of the "Coalition to Preserve the Primary Status of the 27.5-30.0 GHz Band for Satellite Services" ("Satellite Coalition"), asserted in an ex parte submission on December 3, 1993, that the C-band and Ku-band spectrum is insufficient to satisfy satellite demands. To the contrary, the Satellite Usage Report confirms that the total amount of orbital arc capacity of U.S. domestic satellites in the C-band and Ku-band is approximately 33,000 MHz, which far exceeds current demand; accordingly, Dr. Krauss correctly concludes that any saturation of that spectrum may be years or even decades off.

Along with the Satellite Usage Report, Suite 12 filed the enclosed statement of Walter L. Morgan, a Senior Consultant at the Communications Center, which conducts a quarterly review of the over 500 transponders that serve the United States from domestic Fixed Satellite Service satellites. Mr. Morgan reports that based on his observations as of December 1993, 11.7% of the C-band and 23.2% of the Ku-band capacity does not appear to be in revenue service, and 19.4% of the C-band and 26.7% of the Ku-band capacity is used only occasionally. Thus, Mr. Morgan states that there

is approximately 10.773 GHz of available capacity (and a total of 12 GHz including guard bands) in existing geosynchronous satellites in the C-band and the Ku-band. Mr. Morgan adds that the recent launch of Telstar 401 has added an additional 2 GHz of new capacity. Mr. Morgan further notes that VSATs presently occupy only 1,688 MHz or 14.6% of the available Ku-band bandwidth. In view of this evidence of substantial available capacity for satellite usage outside the 28 GHz band, any claim by the Satellite Coalition that the 28 GHz band must be preserved exclusively for future satellite demand is illogical and simply is not supported by the evidence in the LMDS rulemaking record.

The Satellite Usage Report submitted today by Suite 12 also critiques a chart which the Satellite Coalition submitted to the Commission in its December 3 filing, purportedly depicting the present and proposed satellite use of the 27.5-30.0 GHz band. In this regard, Dr. Krauss documents a number of reasons why the Satellite Coalition's chart is flawed, and incorrectly overstates the extent of current and proposed satellite activity in that band. Specifically, as Dr. Krauss explains, the chart is misleading for the following reasons:

- (1) The chart includes the 29.5-30.0 GHz band as well as the 27.5-29.5 GHz band. However, since the 29.5-30.0 GHz band is allocated exclusively for satellite use, and the LMDS proceeding involves the proposed reallocation of the 27.5-29.5 GHz band, any proposals to use the 29.5-30.0 GHz band are irrelevant to the LMDS proceeding.
- (2) Calling Communications has not filed an application for a Ka-band system, and its submissions to the FCC suggest a novel approach that may not receive FCC approval; thus, its planned design should not be shown on the chart.
- (3) The NASA ACTS system is a short-term, experimental system; thus, it is questionable whether it should be shown on the chart as a permanent user of the largely fallow 28 GHz band.
- (4) If the NASA ACTS system is shown on the chart, only the few discrete frequencies actually occupied by the system should be shown, rather than the entire band from 28.97-29.87 GHz.
- (5) Motorola has requested only 100 MHz in the Ka-band for a feeder link, which need not be located in an area where LMDS is likely to be implemented; moreover, Motorola's proposed 100 MHz for use as a

Letter to the Chairman and Commissioners
January 10, 1994
Page 3

feeder link does not have to be in the 27.5-29.5 GHz band, as detailed in the enclosed Satellite Usage Report.

In view of the inaccurate portrayal of satellite usage of the 27.5-30.0 GHz band submitted by the Satellite Coalition, the Satellite Usage Report contains a chart of the spectrum which realistically and accurately portrays satellite usage in the 27.5-29.5 GHz spectrum. When one objectively examines the current and proposed satellite uses in the 28 GHz band, as Dr. Krauss has, the inevitable conclusion is that there is in fact little current or prospective commercial demand for satellite operations in the 28 GHz band, and what little demand there is can be accommodated readily in the 29.5-30.0 GHz spectrum.

In view of the conclusions contained in the reports prepared by Dr. Krauss and Mr. Morgan, as well as those contained in the other documents placed into the record recently by Suite 12, and in view of the Commission's own findings expressed in its NPRM released early in 1993, the record in this proceeding overwhelmingly supports the Commission's previously proposed reallocation of the largely unused 28 GHz band for the pro-competitive LMDS. We therefore urge the Commission to facilitate the prompt deployment of the competitive, consumer friendly LMDS with the issuance of two 1 GHz licenses per service area.

Please direct any questions regarding this matter to the undersigned.

Sincerely,



Michael R. Gardner
Charles R. Milkis
William J. Gildea III
Counsel for Suite 12 Group

Enclosures

cc Acting Secretary William F. Caton
(for inclusion in the LMDS rulemaking record)

Satellite Usage at 28 GHz

Prepared by Jeffrey Krauss

January 10, 1994

JEFFREY A. KRAUSS, PH. D.
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TEL. 301-309-3703
FAX. 301-309-9323

Satellite Usage at 28 GHz

prepared by Jeffrey Krauss
for Suite 12 Group

January 10, 1994

I have reviewed the two-page handout from the "Coalition to Preserve the Primary Status of the 27.5-30.0 GHz Band for Satellite Services" and the chart attached to that handout that were filed in Docket No. 92-297 on December 3, 1993. That paper claims that the C-band and Ku-band satellite spectrum is insufficient to satisfy demands. However, the claim is misleading because none of the "demands" it cites in the 27.5-29.5 GHz range are for fixed satellite service. Rather, the proposed uses in that band are for mobile satellite service, feeder links for mobile satellite service, and experimental operations.

In my opinion, the existing C-band and Ku-band allocations are fully sufficient for the foreseeable future to satisfy demands for fixed satellite service. I have analyzed the current orbital assignments at C-band and Ku-band. Based on actual transponder capacity assigned to each satellite, and taking into account the reuse of spectrum due to cross-polarization, the total amount of orbital arc capacity of U.S. domestic satellites now in orbit is 32,989 MHz. This exceeds the demand for such capacity, as evidenced by the fact that newly-announced cable programming services are having no problem securing satellite capacity. As Hughes correctly notes in its Comments in Docket No. 92-297, "saturation of C and Ku band is not quite at hand in the United States." Hughes Space and Communications Company Comments at p. 3. The bulk of existing domestic satellite capacity is now used for video distribution. With the growing commitments of cable programmers such as HBO to employ digital video compression, any saturation may be many years or even decades off.

The Coalition paper is misleading for another reason: it covers the 29.5-30.0 GHz band as well as the 27.5-29.5 GHz band. But the 29.5-30.0 GHz band is allocated exclusively for satellite use and there has not been any proposal to change that allocation. Thus, the Norris and TRW proposals do not conflict in any way with terrestrial use of the 27.5-29.5 GHz band.

The chart of satellite use attached to the two page paper of the Coalition is misleading for several reasons. These include (1) Calling Communications has not filed any application for a Ka-band satellite system, and its submissions to the FCC suggest a novel approach that may not receive FCC approval; (2) the NASA ACTS system is a short-term experimental system; (3) the NASA systems will use only selected channels within the band rather than the entire band that is shown on the chart; (4) the Motorola Iridium system proposes to use Ka-band spectrum only for a feeder link, which need not be situated in an area where LMDS is likely to be implemented, and need not even be in the 27.5-29.5 GHz band. Consequently, it is evident that there is little commercial demand for Ka-band satellite operations, and what little demand there is can be accommodated in the 29.5-30.0 GHz portion that is not shared with terrestrial microwave. I have attached a corrected version of ~~the chart~~.

Calling Communications

The largest spectrum requirement shown on the chart in the 27.5-29.5 GHz range is that of Calling Communications. Based on comments it submitted in CC Docket No. 92-297, Calling Communications Corp. ("Calling") claims to be planning a low earth orbit satellite system (LEOS) that would use Ka-band frequencies for both fixed and gateway links. However, Calling has not yet submitted any application to the Commission for such a system.

It is important to distinguish between the use of Ka-band for fixed links to fixed earth stations, and feeder or gateway links to gateway earth stations. Feeder links are used with mobile satellites or broadcast satellites to connect the satellite with a small number of fixed earth stations. These earth stations are used for control purposes and to interconnect with the terrestrial communications network, rather than to provide the primary (mobile satellite or broadcast satellite) service. As Calling correctly notes, "feeder link or gateway earth stations can be located in sparsely populated areas where LMDS is not likely to be provided." Calling Comments at fn 6.

Although Calling has not submitted an application for its system, its comments suggest that it is planning a hybrid system that would be licensed both as a LEOS system (with the primary mobile satellite service operating at L-band or S-band, and feeder links at Ka-band) and as a fixed satellite system operating at Ka-band. Calling Comments, p. 2. If so, that would be a truly unique design that would require special Commission review and approval. FCC satellite policies do not permit such hybrid fixed/mobile use. Moreover, such a design would make inefficient use of the orbit-spectrum resource and would not be permitted. But in any case, a full investigation of such issues would be needed before such a system could be constructed.

In my opinion, it is doubtful whether Calling would be able to arrange financing for such a system.

Consequently, because no application has been submitted, and Callings's planned design may raise special regulatory problems, it should not be shown on the chart at all.

NASA ACTS System

NASA recently launched an experimental satellite, the Advanced Communications Technology Satellite ("ACTS"). Based on information submitted to the FCC and NTIA (See NTIA Certification of Spectrum Support for the Advanced Communications Technology Satellite ("ACTS"), dated February 4, 1993), it will operate on a few discrete frequencies within the 27.5-29.5 GHz band. In the 27.5-29.5 GHz range, uplinks will operate only on 29.242 GHz, 29.263 GHz, 29.298 GHz and 29.450 GHz. Other frequencies above 29.5 GHz will also be used. Thus, the chart showing that NASA will use the entire band from 28.97 GHz to 29.87 GHz is misleading.

The ACTS satellite program is intended to develop and test high-risk technologies. It is an experimental program and licensed as a station class XR (experimental research station, used in basic studies concerning scientific investigation looking toward the improvement of the art of radio communications.) The FCC traditionally accords experimental radio systems a lower priority in terms of spectrum sharing. Experimental systems must accept interference from, and may not cause interference to, any regularly licensed services.

The program has an expected life of only four years. After the end of four years, it could be shut down. If there is any commercial interest, it could be sold to a commercial operator.

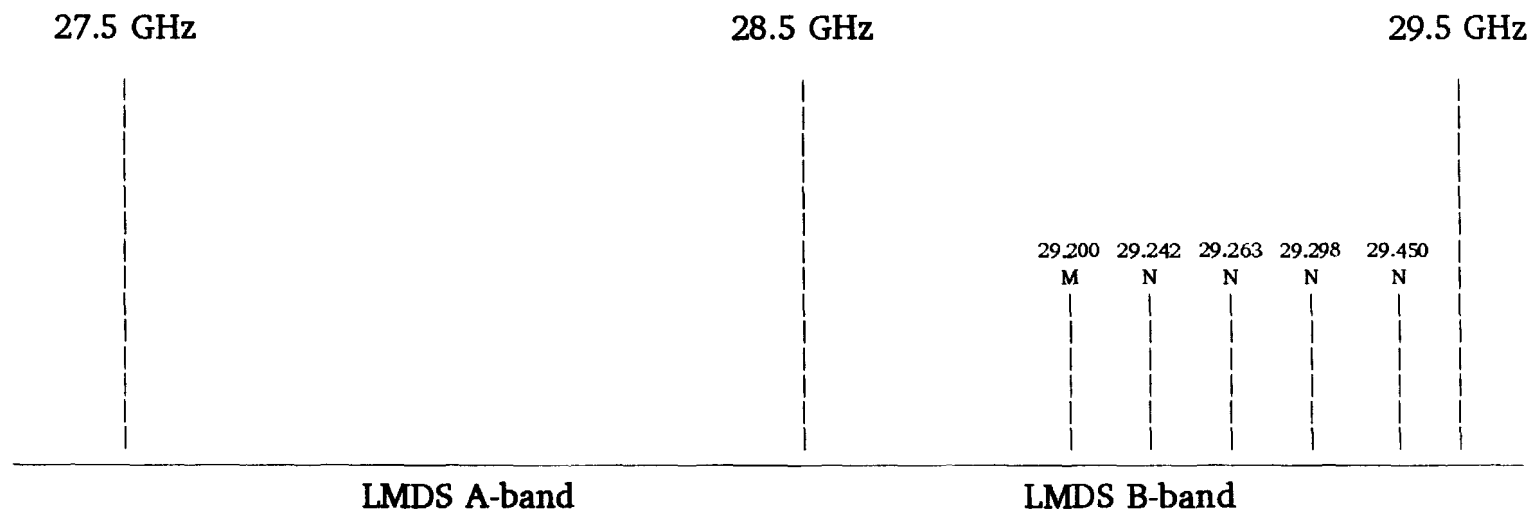
Consequently, because of the temporary duration and experimental classification of the program, it is questionable whether it should even be shown on the chart. If it is shown, only the frequencies actually occupied should be shown.

Motorola Iridium System

Contrary to the chart which shows a requirement for 200 MHz, Motorola has requested only 100 MHz somewhere in the 29.1-29.3 GHz range. This would be used for uplink control channels for its Iridium LEOS system, not for communications with customers or their premises. Only one or two control stations are needed in the entire country. Consequently, Motorola can site its uplink stations in rural areas, where LMDS stations are unlikely to be established, to avoid any LMDS interference problems. In this manner, Iridium and LMDS can share the spectrum.

Motorola has never justified its choice of 29.1-29.3 and 19.4-19.6 GHz for feeder links. So far as we can tell, it was free to choose any fixed satellite frequencies for feeder links. It could have chosen frequencies in the 29.5-30.0 and 19.7-20.2 GHz bands, which are free from any terrestrial microwave use, or frequencies at C-band or Ku-band. (Other proposed LEOS satellite systems, such as Loral Qualcomm, plan to use C-band frequencies.) There is no obvious reason why the 29.1-29.3 and 19.4-19.6 GHz frequencies must be retained. It is certainly not true, as Motorola claimed in its Comments in CC Docket No. 92-297, that these frequencies are "essential" for its LEOS system. Since it has not yet filed any applications for earth stations, Motorola may still be able to change its frequency selection.

Proposed and Actual Uses of 27.5-29.5 GHz Band



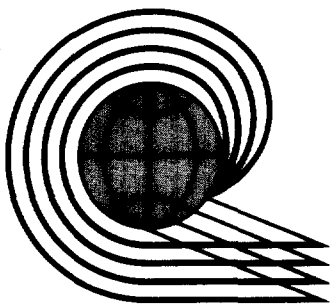
M: Motorola Iridium intends to occupy 100 MHz somewhere between 29.100 and 29.300 GHz

N: NASA ACTS occupies 41 MHz channels at 29.242, 29.263, 29.298 and 29.450 GHz on a limited-duration experimental basis

Note: As discussed in the text, of the Ka-band parties identified in the Satellite Coalition chart, these are the only proposed users of the 27.5-29.5 GHz band that have announced concrete plans; Norris and TRW will use the 29.5-30.0 GHz band, and Calling Communications has not announced any specific plans

Statement of Walter L. Morgan

January 7, 1994



Communications Center

2723 Green Valley Road
Clarksburg, MD 20871-8599
Telephone: 1-301-831-6700
Facsimile: 1-301-865-5577

Walter L. Morgan

I am a Senior Consultant at the Communications Center. I have a degree in Electrical Engineering and have been involved in satellites and communications continuously since 1958. I have been employed by RCA at its David Sarnoff Research Laboratory and its Space Center. I was the Senior Staff Scientist at COMSAT Laboratories. Since 1980 I have been a Consultant at the Communications Center which serves national and international communications organizations.

I am the author of over 100 papers and a co-author of the *Communications Satellite Handbook* (1989), a textbook (1993) and the best-selling book on VSATs (1988).

I have been made a Fellow of the AIAA, a Fellow of the BIS and a Senior Member of the IEEE.

The Communications Center was asked to provide current information on the amount of unused or only partially used capacity in existing satellites.

The Communications Center provides certain clients with a quarterly review of the over 500 transponders that serve the United States from the domestic FSS satellites. This report is based on observations made using the Center's own receiving earth stations. This data collection is

pertinent because it is 1) of the same FSS service as the Hughes Speedway Application and 2) the more than 500 transponders provided a statistically significant sample.

Based on my December 1993 observations of the C and Ku-band fixed satellite service transponders that serve the United States, 11.7% of the C-band and 23.2% of the Ku-band capacity does not appear to be in revenue service. In addition, 19.4% of the C-band and 26.7% of the Ku-band capacity is used only occasionally. Collectively, these two categories represent 10.773 GHz of available capacity in the geosynchronous satellites in operation at that time. If this were expressed in terms that are directly comparative to the Hughes Spaceway Application (that is to include guard bands) the quantity would be in excess of 12 GHz.¹

A total of 31 Ku-band transponders are used for VSAT and Omnitrac services. This represents a total transponder capacity of 1,688 MHz (or 14.6% of the available Ku-band bandwidth). VSAT services have been available since 1985. A direct comparison with the Spaceway filing is 1,890 MHz. The Hughes Spaceway Application proposes to add approximately 11,500 MHz of VSAT capacity.

January 7, 1994

¹ Subsequent to these observations the Telstar 401 satellite was launched. This adds approximately 2 GHz of new capacity.

Appendix

DR. JEFFREY A. KRAUSS

Capabilities and Experience

Dr. Krauss is considered to be one of the leading recognized experts in radio spectrum management and telecommunications technology policy. He provides government relations and strategic planning services for telecommunications ventures. He advises clients on the impact of government regulations, spectrum management policies and legislation upon telecommunications networks and technology. Dr. Krauss also assists clients in achieving exceptions or changes to government spectrum management policies affecting their telecommunications needs.

He offers expert witness testimony and assists clients in preparing testimony and in testifying before government bodies. Based on his knowledge of the telecommunications industry and emerging technologies, he provides competitive assessments and other "due diligence" analyses to businesses and investors.

He is an active participant in policy and standards activities of trade associations such as the Electronic Industries Association, the American Electronics Association, and the National Cable Television Association. He has participated in:

- EIA Point-to-Point Microwave Communications Section
- EIA Satellite Communications Section
- EIA Legislative Affairs Council
- NCTA Engineering Committee
- SBCA Technical Committee
- FCC Advanced Television Advisory Committee
- U.S. CCIR IWP 11/6 and JIWP 10-11-3

Dr. Krauss serves in the FCC Advisory Committee process for choosing a standard for High Definition Television.

In addition, he participated in the FCC's industry advisory group for the 1992 World Administrative Radio Conference, which will decide on radio spectrum allocations for personal wireless communications networks, digital satellite radio broadcasting services and mobile satellite services.

He writes a monthly column for Communications Engineering and Design Magazine entitled "Capital Currents" which reviews FCC and Congressional activities that influence telecommunications technology.

FCC Participation

During the 1987-93 time period, Dr. Krauss prepared comments and studies that were filed in the following FCC dockets and investigations:

- Docket No. 85-301, Cable TV Terminal Devices
- Docket No. 86-336, Scrambling of Satellite TV Signals
- Docket No. 86-495, Allocation of Spectrum for Basic Exchange Telecommunications Radio Service
- Docket No. 86-496, Implementation of Reduced Orbital Spacing for Satellites
- Docket No. 87-5, 900 MHz Multiple Address Frequencies
- Docket No. 87-24, Cable TV/Broadcast Program Exclusivity
- Docket No. 87-136, Reallocation of Spectrum for Local Television Transmission Service
- Docket No. 87-215, Access Charges for Enhanced Service Networks
- Docket No. 87-268, Advanced Television Systems
- Docket No. 87-389, Revision of Part 15 (Low Power Communications Devices)
- Docket No. 87-530, Access Charges for Private Line Networks
- Docket No. 87-552, Equipment Authorization Procedures
- Docket No. 88-2, Open Network Architecture
- Docket No. 88-57, Connection of Inside Wiring to the Telephone Network
- Docket No. 88-96, Spectrum for Air-to-Ground Telephone Service
- Docket No. 89-78, Satellite Encryption Standards
- Docket No. 89-89, Satellite Syndicated Exclusivity
- RM-5879, Petition for 6425-6875 MHz Spectrum Allocation
- RM-6014, Petition for 18 GHz Video Distribution

RM-6196, Petition for 220 MHz Allocation for Two-Way TV Return Channel
 Docket No. 89-554, Preparation for 1992 WARC
 Docket No. 90-5, Distribution of Video Entertainment at 18 GHz
 Docket No. 90-217, Pioneer Preference for Spectrum
 Docket No. 90-314, New Personal Communications Services
 RM-7628, C-Band Satellite Orbital Spacing
 Docket No. 91-1, Television Decoder Circuitry
 Docket No. 91-169, Cable Television Technical and Operational Requirements
 Docket No. 92-9, Spectrum for Emerging Telecommunications Technologies
 Docket No. 92-115, Revision of Part 22
 Docket No. 92-160, IFRB Registration
 Docket No. 92-266, Cable TV Rate Regulation
 Docket No. 92-297, Local Multipoint Distribution Service at 27.5-29.5 GHz
 Docket No. 93-1, Marketing of Radio Scanners
 Docket No. 93-7, Compatibility Between Cable Systems and Consumer Electronics Equipment
 Docket No. 93-59, Wind Profiler Radars
 Docket No. 93-61, Automatic Vehicle Monitoring

Background and Experience

During 1987-1993, he has worked on the following projects and studies for selected clients:

- use of 28 GHz for point-to-multipoint distribution of video;
- impact on equipment manufacturers if Bell Operating Companies are permitted to diversify into manufacturing and enhanced services;
- use of microwave to bypass telephone services in Manhattan;
- negotiations with FCC and Commerce Department staff on transmission power levels applicable to microwave intrusion alarms and motion sensors;
- technical means for implementing "syndicated exclusivity" in cable TV systems;
- regulatory feasibility of implementing new communications and radiolocation technologies in unused or little-used radio spectrum allocations;
- testimony used in five Congressional hearings;
- negotiations of legislative language affecting Digital Audio Tape consumer equipment;

- negotiations with the U.S. Copyright Office regarding the permissibility under the copyright laws of cable converter on screen displays and menus;
- participation as an expert witness in lawsuits involving digital satellite earth stations, digital microwave systems and home satellite dishes;
- analyzing the interference from Navy radars into paging services around 930 MHz;
- reallocation of Federal Government spectrum for non-Government use;
- modification of FCC policies on C-band satellite spacing;
- impact of proposed Rochester Tel restructuring on local telephone service competition.

As Vice President, Corporate Affairs for M/A-COM, Inc., a Fortune 500 telecommunications manufacturing company, Dr. Krauss was responsible for policy development in the areas of federal government legislative and regulatory policies, and coordination of technical standards. This included spectrum allocations and other regulatory activity of the Federal Communications Commission, as well as international trade, export policy and other issues of concern to "high-tech" industry. He directed legislative and regulatory initiatives in areas such as domestic and international telecommunications industry structure, orbital spacing, satellite earth station standards, microwave spectrum allocations, international trade and export policy.

In 1985 and 1986, he met with numerous Congressmen and their staffs to educate them on satellite video scrambling. He prepared testimony for witnesses in four Congressional hearings, briefed witness for hearings, and drafted comments for an FCC inquiry on the subject.

During the early 1980s, Dr. Krauss played a major role in influencing the design of Very Small Aperture Satellite Terminal networks (VSATs) to operate at Ku-band rather than C-band in order to minimize the burdens of FCC frequency coordination and licensing policies. He successfully convinced FCC staff to permit blanket licensing for each network rather than station-by-station license. In response to proposed licensing fees of \$1350 per earth station, Dr. Krauss led an industry coalition that successfully convinced FCC and Congressional staff to charge

VSAT licensing fees on a per-network basis rather than a per-station basis.

In international trade matters, Dr. Krauss participated in industry meetings to develop telecommunications trade policy. He prepared testimony for a witness at 1985 hearings on the "Wirth-Florio" telecommunications trade bill. Dr. Krauss accompanied corporate executives to Japan to negotiate with the Ministry of Post and Telecommunications staff on microwave equipment standards and user eligibility. As a result, the Japanese MPT allowed the company to sell its equipment in Japan.

In 1991, the FCC awarded the first microwave broadcasting license using the 28 GHz band to a client of Dr. Krauss. Using a regulatory strategy that Dr. Krauss conceived and implemented, the client now has an FCC license to use 1000 MHz of radio spectrum in New York City for video broadcasting.

In addition, Dr. Krauss has participated in numerous FCC proceedings on microwave equipment technical standards and eligibility regulations for 18, 23, 31 and 38 GHz frequencies. He has prepared formal comments and petitions, as well as personally meeting with the FCC staff. The policies that were adopted by the FCC created many new business opportunities for microwave manufacturers and communications service providers.

Education

BS, Physics; Illinois Institute of Technology, 1964
PhD, Physics; Case Western Reserve University, 1969

Previous Affiliations

1980-1986 M/A-COM, Inc., Rockville, MD
1976-1979 Federal Communications Commission,
Washington, DC
1973-1975 American Satellite Corporation,
Germantown, MD
1970-1973 Bell Telephone Laboratories, Murray
Hill, NJ

Recent Publications

(In addition to monthly CED column)

"Cable-Ready HDTV: Cable May Be The First To Deliver HDTV To The Home" in HDTV: The Politics, Policies, and Economics of Tomorrow's Television, edited by John F. Rice, Union Square Press, New York, 1990

"Politics, Technology and Economics of High Definition TV," seminar presented at Stanford University Department of Engineering Economic Systems, November 16, 1989.

"Monday Memo--A High Definition TV Commentary," Broadcasting Magazine, November 30, 1989, p. 30.

"Satellite Communications: Legal and Regulatory Issues", published in Datapro Reports on Communications Alternatives, October 1987, revised May 1989.

"HDTV--Its gonna be great--or is it?", speech presented at the Annual Telecommunications Industry Association-FCC Dinner, March 14, 1989.

"Microwave Communications: Legal and Regulatory Issues", published in Datapro Reports on Communications Alternatives, December 1987.

"The FCC's Microwave Rules Open New Spectrum Uses", published in Telecommunications, June 1987.

"Common Carrier Trends: An Equipment Manufacturer's View," published in Telematics, December 1984.

"Implications of FCC Regulation of Telecommunications Technical Standards," presented to the 1982 Communications Techniques Seminar, IEEE New York, New Jersey and Princeton Section, March 1982, and published in IEEE Communications Magazine, September 1982.

"FCC Opens Up K-Band for Low Cost Communications," published in Microwave Journal, January 1981.

WALTER L. MORGAN
THE COMMUNICATIONS CENTER
CLARKSBURG, MARYLAND

Present Position

Walter L. Morgan is the President and Senior Consultant of the Communications Center, which was founded in 1980.

Mr. Morgan is in key positions in the design, marketing, and the use of terrestrial and satellite systems and services throughout his entire career.

Mr. Morgan's work at the Center involves preparation of strategic business analyses, pro formas, and market studies in all areas of communications, including satellites, telephony and fiber optics. His extensive knowledge of the Federal Communications Commission (FCC) and pertinent regulatory matters has also enabled him to assist clients in their preparation of filings and negotiations with the FCC and International Frequency Registration Board.

Mr. Morgan is author of the Communications Satellite Handbook, Business Earth Stations For Telecommunications and Principles of Communications Satellites. He is also the Consulting Editor to Satellite Communications magazine, and Editor of the Communications Center's newsletter, Telecommuniqué.

Background

From 1975 until 1980, Mr. Morgan served as the Senior Staff Scientist of COMSAT Laboratories in Clarksburg, Maryland. While an employee of COMSAT, Mr. Morgan was involved in:

- forecasting new telecommunications markets,
- matching spacecraft missions to the communications needs,
- preparing systems specifications for domestic and international satellites, and
- managing programs that involved the talents of two or more of COMSAT's six internal laboratories.

Between 1970 and 1975, he was a member of the technical staff in the Systems Laboratory at COMSAT Laboratories.

Prior to joining COMSAT, Mr. Morgan spent 15 years with GE (RCA) in the David Sarnoff Research Laboratories and the RCA Astro Electronics Division. While there, he was associated with over 20 RCA spacecrafts. He provided engineering and program management services on such programs as the TIROS, ESSA, NOAA, ITOS, the Lunar Orbiter and communications satellites. TIROS was the first successful image sensing satellite to be launched. All of these spacecrafts successfully fulfilled their mission objectives.

WALTER L. MORGAN

Education

Mr. Morgan holds a B.S.E.E. degree from the Carnegie-Mellon University.

Activities

Mr. Morgan is a Senior Member of the IEEE; a Fellow of the AIAA; a Life Member of the AAAS and a Fellow of the BIS. He has been listed in American Men and Women of Science since 1960. He also appears in Who's Who in Aviation & Aerospace and Who's Who in Finance and Industry.

He is internationally known for his many papers and industry contributions. Mr. Morgan was the Chairman of the AIAA Technical Committee on Communications Systems. He has sat on industry and government advisory committees and presently sits on the AIAA Standards Committee. Mr. Morgan holds several patents relating to space and digital devices and has published over 100 papers on telecommunications.

Awards and Honors

Mr. Morgan served (1980 - 1987) on the International Academy of Astronautic's Space Economics and Benefits Committee. In 1982 he was awarded the AIAA's Aerospace Communications Award "for the consistent high level of his continuing contributions to the technology and application of communications satellites, both international and domestic."

CCC45